Synthetic Study on Mollenyne A

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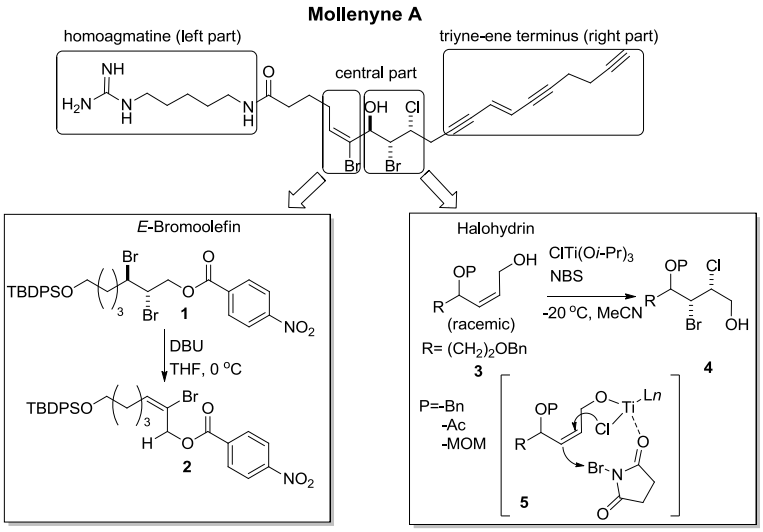
Mollenyne A was isolated from the sponge *Spirastrella mollis* from Plana Cays, Bahamas by Molinski *et al,* and has a biological activity as an anti-tumor potential in human colon tumor cells (HCT-116, with IC_{50} = 1.3 μg/mL).[1)] Mollenyne A includes three important fragments, homoagmatine (left part), allylic alcohol flanked by halogenated carbons (central part) and triyne-ene terminus (right part). Due to the promising the biological activity as well as the intriguing chemical structure, the synthesis of Mollenyne A has been started for abundant supply.

The central part can be divided into two parts, the *E*-bromoolefin and halohydrin. The *E*-bromoolefin moiety was prepared with benzoate **1** via regio- and stereoselective *E*- elimination. *p*-Nitrobenzoyl group induced the desired elimination reaction through increase of the acidity of the hydrogen at the target position.[2)]

On the other hand, the halohydrin was also investigated with racemic model alcohol **3**. Based on a crucial findings by Burns, TiCl(O*i*-Pr)$_3$ as a Cl^- source and NBS as a Br^+ source were used in the regioselective bromochlorination reaction to produce **4**.[3)] This reaction is rationalized by the complexed intermediate **5** which enables the regioselectivity of bromide and chloride. Effects of a substituent on hydroxy group toward diastereoselectivity are examined.



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